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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/797,900

03/10/2004

James J. La Clair

1133.022US1

3353

21186

7590

03/04/2009

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EXAMINER

LIN, JERRY

ART UNIT

PAPER NUMBER

1631

MAIL DATE

DELIVERY MODE

03/04/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/797,900	<b>Applicant(s)</b> CLAIR, JAMES J. LA	
	<b>Examiner</b> JERRY LIN	<b>Art Unit</b> 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 1, 11 and 21-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-10, 12-20, 24 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 16, 2008 has been entered.

### ***Status of the Claims***

Claims 2-10, 12-20, 24 and 25 are under examination.

Claims 1, 11, and 21-23 are withdrawn as being drawn to an unelected invention.

### ***Claim Rejections - 35 USC § 112, 2<sup>nd</sup> Paragraph***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 24 and 25, it is unclear what is meant by the change in binary data on the substrate. According to the parent claims, the molecules are located on the

substrate. It is unclear how these molecules or the interaction of these molecules constitute binary data.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Keefe (US 2002/0004204 A1) in light of Berlien et al. (US 5850195) in view of Smilansky (US 20060228708).

The instant claims are drawn to a method of transferring a stream of digital data through a substrate, allowing the interaction of a molecule with the substrate, receiving streams of digital data transferred through a substrate, and decoding the identity of the molecule interacting with the substrate according to the alteration of the stream of digital data.

Regarding claims 2 and 12, O'Keefe teaches a method and device that includes creating at least one stream of light data and transferring it through a substrate (page 6, paragraph 0065; page 8, paragraphs 0082, 0083); allowing the interaction of molecules with the substrate (page 2, paragraph 0012); receiving streams of light data transferred through the substrate (page 10, paragraphs 0106-0107); and determining the identity of the molecule (page 2, paragraph 0012; page 10, paragraphs 0106-0107).

However O'Keefe does not teach where the identity of the molecule is determined by a change in the stream of binary data.

Smilansky teaches that the light from the substrate is saved as digital data which is used to identify the molecular species (paragraph 0029).

Regarding claim 3, O'Keefe teaches altering the stream according to a programmable function (page 8, paragraphs 0086-0088).

Regarding claims 4, 5, 13, and 14, O'Keefe teaches using a laser beam that is polarized (page 8, paragraphs 0082-0083).

Regarding claim 6 and 15, O'Keefe teaches creating a digitally encoded molecular current (page 10, paragraphs 0106-0107).

Regarding claims 7, 16, and 17, O'Keefe teaches generating digital electronic signals by gating electron flow over a two or three dimensional space (page 10, paragraph 0107) as taught by Berlien et al. (US 5850195) (please see Berlien et al., throughout).

Regarding claim 8-10 and 18-20, O'Keefe teaches controlling heat to add molecules in a two-dimensional surface or a three dimensional element (page 10, paragraphs 0108-0110; page 6, paragraphs 0062-0064).

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the methods of O'Keefe and Smilansky because substituting analog signals for digital (binary) signals would have yielded predictable results to one of ordinary skill in the art. Both of O'Keefe and Smilansky's methods of detecting a molecular species depend on detecting the light emitted from the substrate. Since both

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methods rely on the changes in light to determine the molecular species, one of ordinary skill in the art may substitute one type of data for another.

### ***Withdrawn Rejections***

5. Applicant's arguments, filed 12/16/08, with respect to the rejection made under 35 U.S.C. §102 have been fully considered and are persuasive. Applicant's argument that the conversion of analog to digital signal would render it impossible to determine if the change in the stream of binary data was from the conversion or the substrate is persuasive. This rejection has been withdrawn.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JERRY LIN whose telephone number is (571)272-2561. The examiner can normally be reached on 7:00-5:30pm, M-TH.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie A. Moran can be reached on (571) 272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jerry Lin/  
Examiner, Art Unit 1631  
3/01/09